CLAIMS

What is claimed is:

1. A method of restarting resource reservation protocol (RSVP) processes in multiple network devices, the method comprising the computer-implemented steps of:

entering a recovery mode;

sending a Hello message to a first neighbor RSVP node, wherein the Hello message comprises a non-zero Recovery Time value;

completing the recovery mode;

sending a Hello message to the first neighbor RSVP node, wherein the Hello message comprises a Recovery Time value of zero.

2. A method as recited in Claim 1, further comprising the steps of:

receiving, from a second neighbor RSVP node, a Hello message having a non-zero Recovery Time value;

storing information specifying that the second neighbor RSVP node is in a recovery mode.

3. A method as recited in Claim 2, further comprising the steps of:

receiving, from the second neighbor RSVP node, a Hello message having a zero Recovery Time value;

storing information specifying that the second neighbor RSVP node is in a normal mode.

4. A method as recited in Claim 2, wherein the step of creating and storing second information further comprises the steps of:

receiving an RSVP PATH message that contains a Recovery Label;

forwarding the PATH message to a downstream node with the Recovery Label only in response to determining that the PATH message is being sent to a node that is in recovery mode.

5. A method as recited in Claim 4, further comprising forwarding the PATH message to a downstream node with a Suggested Label in response to determining that the PATH message is being sent to a node that is not in recovery mode.

6. A method as recited in any of Claims 4 or 5, wherein the determining step is performed based on whether a Recovery Time value in a previously received Hello message is non-zero.

7. A method of restarting RSVP processes in multiple network devices, the method comprising the computer-implemented steps of:

entering a recovery mode;

sending a Hello message to a first neighbor RSVP node, wherein the Hello message comprises a non-zero Recovery Time value;

completing the recovery mode;

sending a Hello message to the first neighbor RSVP node, wherein the Hello message comprises a Recovery Time value of zero;

receiving, from a second neighbor RSVP node, a Hello message having a non-zero Recovery Time value;

storing information specifying that the second neighbor RSVP node is in a recovery mode;

receiving, from the second neighbor RSVP node, a Hello message having a zero Recovery Time value;

storing information specifying that the second neighbor RSVP node is in a normal mode;

receiving an RSVP PATH message that contains a Recovery Label;

forwarding the PATH message to a downstream node with the Recovery Label only in response to determining that the PATH message is being sent to a node that is in recovery mode;

forwarding the PATH message to a downstream node with a Suggested Label in response to determining that the PATH message is being sent to a node that is not in recovery mode.

8. A computer-readable medium carrying one or more sequences of instructions for restarting resource reservation protocol (RSVP) processes in multiple network devices, which instructions, when executed by one or more processors, cause the one or more processors to carry out the steps of:

entering a recovery mode;

sending a Hello message to a first neighbor RSVP node, wherein the Hello message comprises a non-zero Recovery Time value;

completing the recovery mode;

sending a Hello message to the first neighbor RSVP node, wherein the Hello message comprises a Recovery Time value of zero.

9. A computer-readable medium as recited in Claim 8, further comprising instructions for performing the steps of:

receiving, from a second neighbor RSVP node, a Hello message having a non-zero Recovery Time value;

storing information specifying that the second neighbor RSVP node is in a recovery mode.

10. A computer-readable medium as recited in Claim 9, further comprising instructions for performing the steps of:

receiving, from the second neighbor RSVP node, a Hello message having a zero Recovery Time value;

storing information specifying that the second neighbor RSVP node is in a normal mode.

11. A computer-readable medium as recited in Claim 9, wherein the step of creating and storing second information further comprises instructions for performing the steps of:

receiving an RSVP PATH message that contains a Recovery Label;

forwarding the PATH message to a downstream node with the Recovery Label only in response to determining that the PATH message is being sent to a node that is in recovery mode.

12. A computer-readable medium as recited in Claim 11, further comprising instructions for forwarding the PATH message to a downstream node with a Suggested Label in response to determining that the PATH message is being sent to a node that is not in recovery mode.

13. A computer-readable medium as recited in any of Claims 11 or12, wherein the determining step is performed based on whether a Recovery Time value in a previously received Hello message is non-zero.

14. An apparatus for restarting resource reservation protocol (RSVP) processes in multiple network devices, comprising:

means for entering a recovery mode;

means for sending a Hello message to a first neighbor RSVP node, wherein the Hello message comprises a non-zero Recovery Time value;

means for completing the recovery mode;

means for sending a Hello message to the first neighbor RSVP node, wherein the Hello message comprises a Recovery Time value of zero.

15. An apparatus as recited in Claim 14, further comprising:

means for receiving, from a second neighbor RSVP node, a Hello message having a non-zero Recovery Time value;

means for storing information specifying that the second neighbor RSVP node is in a recovery mode.

16. An apparatus as recited in Claim 15, further comprising:

means for receiving, from the second neighbor RSVP node, a Hello message having a zero Recovery Time value;

means for storing information specifying that the second neighbor RSVP node is in a normal mode.

17. An apparatus as recited in Claim 15, wherein the means for creating and storing second information further comprises:

means for receiving an RSVP PATH message that contains a Recovery Label;

means for forwarding the PATH message to a downstream node with the Recovery Label only in response to determining that the PATH message is being sent to a node that is in recovery mode.

18. An apparatus as recited in Claim 17, further comprising means for forwarding the PATH message to a downstream node with a Suggested Label in response to determining that the PATH message is being sent to a node that is not in recovery mode.

19. An apparatus as recited in any of Claims 17 or 18, wherein the means for determining is based on whether a Recovery Time value in a previously received Hello message is non-zero.

20. An apparatus for restarting resource reservation protocol (RSVP) processes in multiple network devices, comprising:

a network interface that is coupled to the data network for receiving one or more packet flows therefrom;

a processor;

one or more stored sequences of instructions which, when executed by the processor, cause the processor to carry out the steps of:

entering a recovery mode;

sending a Hello message to a first neighbor RSVP node, wherein the Hello message comprises a non-zero Recovery Time value;

completing the recovery mode;

sending a Hello message to the first neighbor RSVP node, wherein the Hello message comprises a Recovery Time value of zero.

21. An apparatus as recited in Claim 20, further comprising sequences of instructions for performing the steps of:

receiving, from a second neighbor RSVP node, a Hello message having a non-zero Recovery Time value;

storing information specifying that the second neighbor RSVP node is in a recovery mode.

22. An apparatus as recited in Claim 21, further comprising the steps of:

receiving, from the second neighbor RSVP node, a Hello message having a zero Recovery Time value;

storing information specifying that the second neighbor RSVP node is in a normal mode.

23. An apparatus as recited in Claim 21, wherein the step of creating and storing second information further comprises the steps of:

receiving an RSVP PATH message that contains a Recovery Label;

forwarding the PATH message to a downstream node with the Recovery Label only in response to determining that the PATH message is being sent to a node that is in recovery mode.

24. An apparatus as recited in Claim 23, further comprising forwarding the PATH message to a downstream node with a Suggested Label in response to determining that the PATH message is being sent to a node that is not in recovery mode.

25. An apparatus as recited in any of Claims 23 or 24, wherein the determining step is performed based on whether a Recovery Time value in a previously received Hello message is non-zero.